

## METHOD AND SYSTEM FOR e-TRANSACTION

### BACKGROUND OF THE INVENTION

#### Field of the Invention

This invention relates to a method and system for allowing a consumer to buy, if payment is necessary, obtain, transfer and use tickets, coupons or similar items. .

#### Description of the Related Art

To date, when a consumer wished to buy a ticket to enter a certain place such as a theater or open place such as a highway it was necessary to buy a ticket which appeared on paper to allow the person entrance. The transaction for buying such ticket could be conducted in person at a ticket counter or agency handling ticketing such as a travel agency.

Alternatively the consumer could make a reservation by Internet and give their credit card number to order a ticket to be sent by mail or an e-ticket to issue.

When the ticket was sent by mail, the customer had to wait for the ticket to arrive, bring the ticket with them and depending on the ticket could have to buy a new one if they lost it.

In the event of buying an e-ticket for an airplane flight, carrying identification was sufficient to be allowed to enter a flight however, transferring such ticket to another would require making calls to the airline to change the name of the recipient and other resulting procedures.

### SUMMARY OF THE INVENTION

The present invention described herein overcomes the aforementioned problems.

A first objective of the present invention is to provide a method and system for consumers to be able to buy, if

payment is necessary, obtain, transfer and use a ticket, coupon or similar item with a wireless computer.

A second objective of the present invention is to allow the consumers to transfer ticket, coupon or similar items, coupons and similar item from one to another. In order to confirm the contents of a ticket, coupon or similar item, a screen of a wireless computer can display information data related to such item that may include the time, date, place, price paid or other conditions related to the item. This transfer is carried out by sending information data from the receiving wireless computer and may include that the ticket, coupon or similar item be erased from the memory of the sending wireless computer so that any fear of the same ticket, coupon or similar item being given to two separate people at the same time can be alleviated.

The above-stated and other objectives and technical features of the present invention will become apparent from the following description when taken with the accompanying drawings.

It will be understood, however, that the drawings are for purposes of illustration and are not to be construed as defining the scope of an invention, reference being had for the latter purpose to the claims appended hereto.

#### BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a schematic diagram of a network showing one example of a schematic structure of an e-transaction system of the present invention.

Figure 2 is a schematic diagram of a network showing one example of a schematic structure of the e-transaction system of the present invention.

Figure 3 is a function block diagram showing one example of a wireless computer to be used in the e-transaction system of the present invention.

Figure 4 is a schematic diagram of a network showing one example of a schematic structure of the e-transaction

system of the present invention.

Figure 5 is a schematic diagram of a network showing one example of a schematic structure of the e-transaction system of the present invention.

Figure 6 is an explanatory diagram illustrating an information recording medium of the present invention.

#### DESCRIPTION OF THE PREFERRED EMBODIMENTS

Hereinbelow, a detailed description will be given of preferred embodiments of the present invention with reference to the accompanying drawings.

##### (FIRST EMBODIMENT)

Figure 1 shows wireless computer 101, a portable computing device such as a cell phone, palm computer, PDA or any computing device capable of wireless and wired communication is mobile or immobile, said wireless computer 101 having a memory accessible to wireless computer 101 that is physically non-removable or removable such as a floppy disk, memory stick or other such memory.

Server 102 is capable of wireless communication as well as wired communication and has a memory accessible to server 102 such as a database or other memory.

Server 102 could be a commercially available server or specially made server with wireless and wireless communication capabilities.

Computer 103 is a commercial computer capable of wired communication and having a memory accessible to said computer 103 such as a database or other memory.

Wireless computer 104 is a computer capable of wireless and wired communication comprising a cell phone, palm computer, personal digital assistant (PDA) or any computing device capable of wireless and wired communication is mobile or immobile, said wireless computer 104 having a memory accessible to wireless computer 104 that is physically non-removable or removable such as a floppy disk, memory stick or other such memory.

In step 1(S1) wireless computer 101 forms a communication link with server 102. Server 102 provides information in a format such as an Internet website to wireless computer 101 enabling searches and selections to be made of available tickets, coupons or similar items and related price information, if any, and further enabling input from wireless computer 101 to server 102.

In step 2(S2), a user of wireless computer 101 sends an information data to server 102 indicating an order for a ticket, coupon or similar item from server 102 further indicating a name for said user to be used in identifying their ownership of any ticket, coupon or similar item successfully acquired and including any required payment related information if so required.

Alternatively, in the event that said payment related information is required and is not provided simultaneously with said order, server 102 sends information data to wireless computer 101 indicating that payment related information is required.

Alternatively, in the event that no payment is required to receive said ticket, coupon or similar item, step 5(S5) is commenced next.

Once said required payment related information is received by server 102 in step 2, in step 3(S3) server 102 forms a communication link with computer 103. Server 102 communicates to computer 103 said required payment related information and said related price information of said order.

Computer 103 connects with said memory accessible to computer 103 and confirms said required payment related information and, if said required payment related information matches information contained in said memory accessible to computer 103 and that the account indicated by said payment information contains sufficient funds to pay said cost of said order, computer 103 records to said memory accessible to computer 103 a reduction in said

account in the amount of said cost of said order and records credit equal to said cost of said order in an account for said server 102.

In step 4(S4) computer 103 sends a information data to server 102 indicating that payment has been completed for said order.

In the event that step 3 cannot be completed due to said required payment related information not matching said information contained in said memory accessible to computer 103, said account not having sufficient funds or other reason, in step 4, computer 103 sends information data to server 102 indicating that payment has not been completed.

Server 102 then returns to Step 2, by indicating to wireless computer 101 that said required payment related information was incorrect or that payment was unable to be processed and allowing wireless computer 101 to send new required payment related information.

Following completion of payment under step 4, in step 5 server 102 accesses said memory accessible to server 102 and records said name of said user as the owner of said ticket, coupon or similar item and sends a information data to wireless computer 101 that comprises a ticket, coupon or similar item.

Said ticket, coupon or similar item information data is able to be recorded in said memory accessible to wireless computer 101.

Said information data may be accessed from said memory accessible to wireless computer 101 and be displayed on a screen of wireless computer 101.

In step 6(S6), said user of computer 101 decides to deliver or transfer said ticket, coupon or similar item information data to a user of said wireless computer 104.

Said user of computer 101 may decide on their own, apart from this invention whether they wish to receive cash for the ticket, coupon or similar item, donate it free of charge or whatever reason for transferring the ticket,

coupon or similar item and what payment means they wish to pursue. Wireless computer 104, by way of example only, may be a wireless computer at a movie theater that receives ticket, coupon or similar item transfers from customers at the entrance of a theater in exchange for allowing admission.

In step 6, wireless computer 101 forms a communication link with wireless computer 104, this communication link may be formed by means of wireless telephone making use of a wireless communication technology, said wireless communication technology may include Bluetooth or other wireless communication technologies.

Wireless computer 101 then sends said ticket, coupon or similar item to wireless computer 104 in the form of said ticket, coupon or similar item related information data.

Wireless computer 104 then accesses said memory accessible to wireless computer 104 and records said ticket, coupon or similar item related information data to said memory accessible to wireless computer 104.

At least a part of said ticket, coupon or similar item related information data can be recalled from memory and displayed on a screen of said wireless computer 104.

In step 7(S7), wireless computer 104 sends ownership related information data indicating to erase said ticket, coupon or similar item related information data from said memory accessible to wireless computer 101 and further indicating to wireless computer a name to send to said server 102 to record as a new owner of said ticket, coupon or similar item related information data to said memory accessible to server 102.

In step 8(S8), wireless computer 101 forms a communication link with server 102 and indicates to change said name of said ticket, coupon or similar item related information data recorded in said memory accessible to server 102 from said name to said new name.

Server 102 then accesses said memory accessible to server

102 and orders that said name of said ticket, coupon or similar item related information data be changed as recorded from said name to said new name.

Said erasure from said memory accessible to wireless computer of said ticket, coupon or similar item related information data either in step 7 or step 8.

Following said erasure, said ticket, coupon or similar item related information data can no longer be viewed on said screen of wireless computer 101.

Following completion of Step 8, in Step 9(S9), server 102 sends new ownership related information data to wireless computer 101 indicating said new name has been recorded.

Wireless computer 101 then erases from said memory accessible to wireless computer 101 said ticket, coupon or similar item related information data.

In step 10, wireless computer 101 sends new ownership completion related information data to wireless computer 104 indicating that said ticket, coupon or similar item related information data has been erased from said memory accessible to wireless computer 101 and further indicating that said new name has been recorded as the owner of said ticket, coupon or similar item related information data.

As an alternative to steps 8 and 9 and part of step 10(S10), in a separate embodiment of the present invention, said user of wireless computer 104 may in step 11 form a communication link with server 102 and send ownership change related information data ordering that said name be changed to said new name as said owner of said ticket, coupon or similar item related information data.

Server 102 then accesses said memory accessible to server 102 and orders that said name of said owner of said ticket, coupon or similar item related information data be changed from said name to said new name.

Following successful completion of step 11(S11), server 102 sends new ownership related information data to wireless computer 104 indicating said new name as being

recorded as said owner of said ticket, coupon or similar item information data.

In this alternative embodiment, in steps 7 and 10, said user of wireless computer 104 may send erasure related information data to erase said ticket, coupon or similar item related information data from said memory accessible to wireless computer 101 and receive a information data from wireless computer 101 indicating completion of said erasure.

#### [SECOND EMBODIMENT]

There will be explained below a second embodiment of the present invention with reference to Figure 2. Here, the description relating to a substantially similar structure in the first embodiment is omitted, and only different portions will be explained.

Figure 2 is a function block diagram schematically showing a structure of the e-transaction system of the present embodiment.

Figure 2 shows wireless computer 101, server 102, computer 103, wireless computer 104 and computer 105.

Figure 2 shows an alternative embodiment of the present invention to accommodate said user of wireless computer 101 if required payment related information data is required and should they wish to make payment by electronic wire transfer or by similar communication means from one bank, credit institution or similar funds source to another. Computer 105 is a computer capable of wireless communication and non-wireless communication and has a memory accessible to computer 105.

Unlike the embodiment described above as to figure 1, in Step 2, said user indicates that they desire to pay by a method such as electronic wire transfer or similar means. In response to that upon receipt of an order to pay from server 102, in step 4 wireless computer 101 forms a wireless communication link with computer 105.

Required payment related information data is then sent



from wireless computer 101 to computer 105 indicating an order to pay to computer 103 and further providing required payment related information for computer 105 to make payment to computer 103. Computer 105 then accesses said memory accessible to said computer 105 and records said order to pay. In step 5, computer 105 sends payment ordered related information data to wireless computer 101 indicating that payment to computer 103 has been ordered.

In step 6, computer 105 forms a communication link with computer 103 and provides required payment related information data for computer 103 to register that payment will be or has been provided from computer 105. Computer 103 then accesses said memory accessible to computer 103 and records as much of said required payment related information data as is required to conclude payment from computer 105's administration to computer 103's administration.

Upon registration at computer 103 that payment will be made, in step 7, computer 103 forms a communication link with server 102 and as indicated in step 4 relating to figure 1, sends information data to server 102 indicating that payment has been completed.

In step 8, server 102 carries out step 5 relating to figure 1 though it is numbered as step 8 in figure 2.

Step 9 is the same as step 6 relating to figure 1 and steps 7(S7), 8(S8), 9(S9), 10(S10), 11(S11) and 12(S12) are the same as indicated relating to figure 1.

In this embodiment, the order of steps 5 and 6 may be reversed.

A consumer can obtain a ticket for an airplane flight, a movie, or any other kind of entry related event or access as well as gift certificates, coupons or similar transaction related issued or redeemable items.

Similar items that carry the right to access to or receive a discount for a place, receive a discount for or receive a good or a service, can be ordered, received and

transferred according to the present invention as well.

[THIRD EMBODIMENT]

There will be explained below a third embodiment of the present invention with reference to Figures 3 and 4. Here, the description relating to a substantially similar structure in the first embodiment is omitted, and only different portions will be explained.

Figure 3 is a function block diagram schematically showing a structure of a wireless computer to be used in the e-transaction system of the present embodiment.

This embodiment shows an example that an authentication function using fingerprint is provided to the above-mentioned wireless computer.

As shown in Figure 3, wireless computer 110 is constituted so as to include fingerprint reading means 110a, a fingerprint information storage means 110b, authentication means 110c, sending/receiving means 110f, voice I/O means 110g, display means 110e, data storage means 110d, operating means, not shown, and control means 110h.

Fingerprint reading means 110a reads fingerprint information of a user.

Fingerprint information of a user previously read and recorded is stored into fingerprint information storage means 110b.

Authentication means 110c collates the fingerprint information read by fingerprint reading means 110a with the fingerprint information stored in fingerprint information storage means 110b so as to authenticate the user.

Sending/receiving means 110f sends/receives data and signals to/from another information devices. Voice I/O means 110g inputs/outputs a voice through calling or the like.

Display means 110e displays data. The data displayed on display means 110e and another various data are stored in data storage means 110d. Operating means inputs operations.

Control means 110h controls above-mentioned sections, and operates the respective sections only when authentication means 110c performs authentication properly.

Figure 4 is an explanatory diagram for a case where the process for transferring a coupon or similar item similar to the above-mentioned first embodiment is performed between wireless computers 110 and 111 having such a fingerprint authentication function.

The structure and processes common to those in the first embodiment are omitted, and only different portions will be explained.

This embodiment exemplifies a case where fingerprint information of users are stored in wireless computers 110 and 111.

In this case, when wireless computers 110 and 111 are operated, authentication is performed respectively. For this reason, authentication time is short.

More concretely, in the above first embodiment, in step 6 when wireless computer 110 forms a communication link with wireless computer 111, the following steps are carried out.

Namely, in wireless computer 110, acknowledgement of performing fingerprint authentication is displayed and instructed on display means 110e.

When fingerprint reading means 110a reads a fingerprint of a user and authentication is performed properly, an acknowledge signal showing proper authenticated result is sent to wireless computer 111 (S6a).

In general, fingerprint authentication or the like is usually performed when a power is turned on in order to prevent improper use of wireless computer 110.

However, in this embodiment, exclusive commands or programs which start an authentication process when a ticket is transferred or the like is stored in data storage means 110d so that such fingerprint authentication can be used as authentication of a user when a power is turned on and also as authentication of a person who transfers a

ticket or the like.

For this reason, authentication with high security can be performed without additionally using another exclusive encryption program or the like.

Further, when the acknowledge signal reaches wireless computer 111, wireless computer 111 instructs the user to perform fingerprint authentication via display means or the like.

When the authentication of the user is performed properly in wireless computer 111, an acknowledge signal showing that the authentication is performed properly is sent from wireless computer 111 to wireless computer 110 (S6b).

When authentication is not performed properly in either of wireless computers 110 and 111, the above-mentioned acknowledge signals are not output, and a communication link is not formed.

In such a manner, when the acknowledge signal reaches wireless computer 110, a communication link is established, and the process for transferring a ticket or the like is performed through the processes similar to those in the first embodiment.

This embodiment showed the example that authentication is performed when the transferring process is performed.

However, in the case where fingerprint authentication is performed when a ticket or the similar item is purchased, in step 2 of the first embodiment the above-mentioned similar authentication steps may be added.

Namely, a structure may be constituted so that the purchasing step is started with server 102 only when authentication is performed properly in wireless computer 110.

In addition, steps 6a and 6b may be carried out before the transferring process after the communication link is established.

According to this embodiment, the authentication function such as fingerprint authentication is provided to wireless

computers so that the processes for purchasing and transferring a ticket or the like with high security can be performed.

Particularly when the transferring process is performed, information about a ticket or the like is deleted from one wireless computer and only the other wireless computer has ownership of a ticket or the like.

As a result, at a stage that display of a ticket or the like disappears on a transfer side, the ownership and ticket data are removed securely, and thus a situation that two users own one ticket or the like can be avoided by high security.

#### [FOURTH EMBODIMENT]

There will be explained below a fourth embodiment of the present invention with reference to Figure 5.

Here, explanation relating to the structure substantially similar to that in the first embodiment is omitted, and only different portions will be explained.

Figure 5 shows an example that wireless computers 110 and 111 have authentication function and fingerprint information is stored in a database and an authentication process is performed at server 102.

This system is provided with fingerprint database 112 in which fingerprint information of users is stored as well as wireless computers 110 and 111, in addition to sever 102, having fingerprint reading means.

In such a system, in order to perform fingerprint authentication in the transfer process of the first embodiment, in step 2 of the first embodiment, wireless computer 110 instructs a user to perform fingerprint authentication before sending, and the fingerprint information read by fingerprint reading means 110a is sent to server 102 (S2a).

Next, server 102 sends acknowledgment indicating that the fingerprint information is received by server 102 to fingerprint database 112, and fingerprint database 112

gives instruction in retrieving the fingerprint information of the corresponding user (S3a).

When the fingerprint information of the corresponding user is retrieved, fingerprint information of the user previously recorded is sent from fingerprint database 112 to server 102 (S4a). The fingerprint information read by server 102 and the fingerprint information in database are authenticated.

When a result of this authentication is proper, information indicating that the authentication is performed properly stands by in server 102.

Meanwhile, the authentication process in wireless computer 111 is instructed after or at timing with formation of the communication link in step 6 of the first embodiment (S6a). When a fingerprint is read, fingerprint information is sent from wireless computer 111 via wireless computer 110 to server 102 (S6b, S6c).

Thereafter, similarly to the authentication in wireless computer 110, retrieval (S6d), acknowledgment of retrieved result (S6e) and authentication process are performed.

When the authenticated result in wireless computer 110 matches with the authenticated result in wireless computer 111, server 102 sent a signal which shows that the transfer process may be performed to wireless computer 110 (S6f), and the transfer process similar to that in the first embodiment is performed.

According to this embodiment, database for fingerprint authentication is provided to server so that processes for purchasing and transferring of a ticket using fingerprint authentication can be performed in a stage of high security.

#### [FIFTH EMBODIMENT]

There will be explained below a fifth embodiment of the present invention with reference to Figure 6.

This embodiment shows an example of an information recording medium in which programs processed by server in the system in the above-mentioned embodiments are recorded.

Such an information recording medium 200 comprises various media such as a hard disk, CDROM, DVDROM, DVDROM, MO and ZIP.

Programs are recorded in this information recording medium 200. Such programs are used in e-transaction system for making e-transaction by means of a second device of a server or the like for providing services capable of obtaining a ticket, coupon or similar item using a first device composing a user computer or a wireless computer owned by a user.

This information recording medium 200 includes program information 201-1, program information 201-2 and program information 201-3.

The program information 201-1 forms a communication link between the first device and the second device.

The program information 201-2 orders and receives a ticket, coupon or similar item when information data are sent and received between the first device and the second device.

The program information 201-3 displays the ticket, coupon or similar item on a screen of the first device and obtains ownership of the ticket, coupon or similar item.

Further, the information recording medium 200 includes program information 201-4 and program information 201-5.

The program information 201-4 forms a communication link between the second device and a third device in the event that payment is required for transfer of the ticket, coupon or similar item, and sends second information data relating to an amount of deduct from an account of a user having the first device from the second device to the third device.

The program information 201-5 confirms the second information data at the third device and transacts payment by charging the account of the user the amount in the event that the account contains credit.

Further, the information recording medium 200 includes program information 201-6, program information 201-7 and

program information 201-8.

The program information 201-6 sends third information data indicating whether payment was completed or not from the third device to the second device.

The program information 201-7 records a name of the user as a owner of the ticket, coupon or similar item in a second memory of the second device by means of the second device. The program information 201-8 sends fourth information data, including information identifying an account of a user having the first device and information about a name of the user and the ticket, coupon or similar item, from the second device to the first device.

Further, the information recording medium 200 includes program information 201-9 which reads a fingerprint of the user by means of the first device in the event that payment is required for transfer of the ticket, coupon or similar item and authenticates the user by means of the second device based on read fingerprint information.

Further, the information recording medium 200 includes program information 201-10 which reads a fingerprint of the user by means of the first device in the event that payment is required for transfer of the ticket, coupon or similar item, authenticates the user by means of the first device based on read fingerprint information and sends confirmation acknowledgment of an authenticated result to the second device.

Further, the information recording medium 200 includes program information 201-11 which sends new information for identifying an account of the user to the second device by means of the first device in the event that payment is required for transfer of the ticket, coupon or similar item and in the event that the third data indicates incompleteness of the payment.

Further, the information recording medium 200 includes program information 201-12 and program information 201-13 and program information 201-14.



The program information 201-12 receives the fourth information data at the first device.

The program information 201-13 records the fourth information data in the first memory of the first device by means of the first device.

The program information 201-14 displays information including at least one portion of the fourth information data on the screen of the first device.

Further, the information recording medium 200 includes program information 201-15, program information 201-16 and program information 201-16.

The program information 201-15 forms a communication link between the first device and a fourth device owned by another user and sends the fourth information data from the first device to the fourth device. The program information 201-16 records the fourth information data in a fourth memory of the fourth device.

The program information 201-16 displays information including at least one portion of the fourth information data on a screen of the fourth device.

Further, the information recording medium 200 includes program information 201-17, program information 201-18 and program information 201-19.

The program information 201-17 authenticates a fingerprint of the user having the first device by means of the first device after or when the communication link is formed between the first device and the fourth device.

The program information 201-18 authenticates a fingerprint of a user having the fourth device by means of the fourth device. The program information 201-19 instructs sending of the fourth information data in the event that the respective authentication is performed properly.

Further, the information recording medium 200 includes program information 201-20 and program information 201-21. The program information 201-20 sends fifth information data

for instructing the fourth device to delete the fourth information data to the first device.

The program information 201-21 deletes the fourth information data from the first memory based on the fifth information data.

Further, the information recording medium 200 includes program information 201-22 and program information 201-23.

The program information 201-22 sends sixth information data including a second name of a user having the fourth device from the first device to the second device. The program information 201-23 instructs the second memory to change a name to be recorded as an owner of the ticket, coupon or similar item from a prior name into the new name based on the sixth information data.

Further, the information recording medium 200 includes program information 201-24 and program information 201-25.

The program information 201-24 sends seventh information data displaying that the fourth information data are deleted from the first memory from the first device to the fourth device.

The program information 201-25 displays information including the seventh information data on the screen of the fourth device.

Further, the information recording medium 200 includes program information 201-26, program information 201-27 and program information 201-28.

The program information 201-26 records a change in the name recorded as an owner of the ticket, coupon or similar item in a second memory of the second device.

The program information 201-27 sends eighth information data showing that the new name is recorded as the owner of the ticket, coupon or similar item from the first device to the fourth device.

The program information 201-28 displays information including the eighth information data on the screen of the fourth device.

In such a manner, the above-mentioned processes in the respective embodiments are recorded in information recording medium, and such an information recording medium can be distributed, copied or downloaded to be sold.

The apparatus and method of the present invention were explained according to some specified embodiments, but a person skilled in the art can variously modify the above-mentioned embodiments in the present invention without departing from the gist and scope of the present invention. For example, the above-mentioned embodiments exemplified fingerprint authentication as the authentication method, but various authentication methods utilizing iris, voiceprint and the like or a combined method can be used.

Further, needless to say, the present invention includes examples that the above-mentioned embodiments are combined or one of the above embodiments is combined with one of modified examples.